

CLAIMS

1. A male luer apparatus comprising:
- 2 a tubular portion having a forward end;
- a resilient member extending within the inner tubular portion having
- 4 opposite rear and forward ends; and
- a valve member abutting the first end of the resilient member, the
- 6 valve member having a tip for sealing the forward end of the inner tubular
- portion;
- 8 when the male luer apparatus is inserted into a female luer connector,
- the female luer connector drives the resilient member into a compressed
- 10 position to open the forward end of the male luer and permit flow from one
- luer to another;
- 12 whereby liquid exiting the male luer apparatus travels in a generally
- linear path through the inner tubular portion of the male luer and enters the
- 14 female luer.
2. The apparatus as claimed in Claim 1, further including first necked
- 2 area and a second necked area spaced rearwardly from the first necked area.
3. The apparatus as claimed in Claim 1, further including a housing
- 2 having an outer tubular portion with a rear end and a forward open end that
- contains the inner tubular portion which is of a reduced diameter from the
- 4 housing.
4. The apparatus as claimed in Claim 3, wherein the housing is generally
- 2 cylindrical in shape and contains threads on an internal surface of the outer
- tubular portion for engaging complementary threads on the female luer
- 4 connector.

5. The apparatus as claimed in Claim 2, wherein the valve member has
2 a resilient, compressible portion.

6. The apparatus as claimed in Claim 5, wherein the valve member is
2 contoured at said tip to complement the first necked area of the inner tubular
portion.

7. The apparatus as claimed in Claim 6, wherein the valve member is
2 contoured at a location spaced rearwardly of said tip to complement the
second necked area of the inner tubular portion so that the valve member is
4 substantially flush with the forward end of the inner tubular portion in a
sealed condition.

8. The apparatus as claimed in Claim 5, wherein the resilient member is
2 a spring.

9. The apparatus as claimed in Claim 7, wherein the valve member is of
2 elastomeric material.

10. The apparatus as claimed in Claim 1, wherein the resilient member and
2 the valve member are formed integrally.

11. The apparatus as claimed in Claim 10, wherein the resilient member
2 and the valve member are of elastomeric material.

12. The apparatus as claimed in Claim 1, wherein the valve member is
2 attached to the first end of the resilient member.

13. A male luer apparatus for connection with a female luer valve
2 comprising:

4 a tubular housing having a proximal end and a distal end wherein the
female luer can be engaged at the proximal end;

6 an inner tubular portion positioned within the housing and having a
proximal end and a distal end wherein the proximal end of the inner tubular
portion extends beyond the proximal end of the housing and wherein the
8 proximal end of the inner tubular portion comprises a valve seat;

10 a resilient member with first and second ends contained within the
inner tubular portion and abutting the second end to the distal end of the
tubular portion, the resilient member being movable between a compressed,
12 retracted position and an extended position; and

14 a valve member in contact with the first end of the resilient member
and having a forward end shaped for sealing engagement with said valve
seat in the extended position;

16 wherein the male luer apparatus is inserted into the female luer
connector and the female luer connector drives the resilient member into the
18 compressed position to open the proximal end of the male luer and permit
flow from one luer to another;

20 whereby liquid exiting the male luer apparatus travels in a generally
linear path through the inner tubular portion of the male luer and enters the
22 female luer.

14. The apparatus as claimed in Claim 13, wherein the housing is generally
2 cylindrical and defines an internal chamber and contains threads on its inner
core surface within the internal chamber for engaging complementary threads
4 on the female luer connector.

15. The apparatus as claimed in Claim 13, wherein the inner tubular
2 portion is comprised of rigid molded material.

16. The apparatus as claimed in Claim 15, wherein the valve member is
2 contoured on its forward end to complement the first valve seat of the inner
tubular portion.

17. The apparatus as claimed in Claim 16, wherein the valve seat includes
2 first and second spaced recesses, and the forward end of the valve member
includes spaced contoured areas for complementing the first and second
4 recesses.

18. The apparatus as claimed in Claim 17, wherein the resilient member
2 and the valve member are formed integrally.

19. The apparatus as claimed in Claim 18, wherein the resilient member
2 and the valve member are made of elastomeric material.

20. The apparatus as claimed in Claim 13, wherein the resilient member
2 is a metal or elastomeric spring.

21. The apparatus as claimed in Claim 17, wherein the valve member has
2 a rear end engaging said resilient member, and a resilient, compressible
portion between said first and second ends.

22. The apparatus as claimed in Claim 13, wherein the valve member is
2 attached to the first end of the resilient member.

23. A male luer apparatus comprising:

2 a housing;

4 a resilient member with first and second ends that can be elastically
displaced that is contained within the housing;

6 an inner tubular member with a proximal end and a distal end
contained between the housing at a position located coaxially between the
housing and the resilient member wherein the proximal end of the inner
8 tubular member contains a recess that creates a necked area;

10 a valve member abutting the resilient member and sealing the proximal
end of the inner tubular member, the resilient member being movable
between an extended position in which the valve member is in sealing
12 engagement with said proximal end of the inner tubular member, and a
retracted position in which said valve member is retracted rearwardly from
14 said proximal end; and

16 wherein the male luer apparatus is inserted into a female luer
connector and the female luer connector drives the resilient member into a
compressed position to open the proximal end of the male luer and permit
18 flow from one luer to another;

20 whereby liquid exiting the male luer apparatus travels in a generally
linear path through the inner tubular member of the male luer and enters the
female luer.

24. The apparatus as claimed in Claim 23, wherein the housing is generally
2 cylindrical in shape and contains threads on its inner core surface for
engaging complimentary threads on the female luer connector.

25. The apparatus as claimed in Claim 24, wherein the valve member is
2 a ball that seals the inner tubular member at the proximal end.

26. The apparatus as claimed in Claim 25, wherein the ball is made of elastomeric material.

27. A male luer apparatus comprising:

a housing having an outer tubular wall of a first diameter, the outer tubular wall having a rear end and a forward end;

a first tubular member extending co-axially within the housing from the rear end and projecting outwardly beyond the forward end of the outer tubular wall, the first tubular member having a second diameter less than said first diameter, the first tubular member having at least one axially extending slot and a forward end having a valve seat;

a resilient member extending from the rear end of the housing within the first tubular member and having a forward end;

a valve member at the forward end of the resilient member for sealing engagement with said valve seat, the valve member and resilient member being movable between an extended position in which said valve member seals the forward end of said tubular member and a retracted position in which the forward end of the first tubular member is open;

the valve member having at least one guide portion extending radially outwardly through said axial slot in said first tubular member;

a sleeve slidably mounted over said first tubular member between said first tubular member and outer tubular wall, the sleeve trapping said guide portion;

whereby when a female luer is engaged with said male luer, a forward end of a housing of the female luer engages said sleeve and slides it rearwardly into the male luer housing, pushing the resilient member and valve member rearwardly into the retracted position to permit fluid flow through

the engaged male and female luers.

28. The apparatus as claimed in Claim 27, wherein the outer tubular wall
2 of the housing is generally cylindrical in shape and has an inner, threaded
surface for engaging complimentary threads on the female luer connector.

29. The apparatus as claimed in Claim 28, wherein the tubular member
2 and sliding sleeve are of rigid molded plastic.

30. The apparatus as claimed in Claim 29, wherein the resilient member
2 is of elastomeric material.

31. The apparatus as claimed in Claim 29, wherein the resilient member
2 is a spring.

32. The apparatus as claimed in Claim 27, wherein the resilient member
2 is integrally connected to the housing.